

## 2.1-2.4 Review

1.  $2x^3 + 4x^2 - 5x - 3$
2.  $-2x^3 - 4x^2 - 3x - 1$
3.  $4x^4 + 9x^3 - 13x^2 - x + 3$
4.  $-x^2 + 25x - 8$
5.  $9x^2 + 12xy + 4y^2$
6.  $x^3 - 6x^2y + 12xy^2 - 8y^3$
7.  $x^2 + 2x - 24$
8.  $25x^2 + 1$
9.  $(4x + 7)(4x - 7)$
10.  $(x + 5)(x^2 - 5x + 25)$
11.  $(x + 3)(x - 7)$
12.  $9(x + 3i)(x - 3i)$
13. b, c
14. b, c
15.  $\lim_{x \rightarrow -\infty} f(x) = -\infty$   $\lim_{x \rightarrow +\infty} f(x) = \infty$
16.  $\lim_{x \rightarrow -\infty} f(x) = \infty$   $\lim_{x \rightarrow +\infty} f(x) = -\infty$
17.  $\lim_{x \rightarrow -\infty} f(x) = \infty$   $\lim_{x \rightarrow +\infty} f(x) = -\infty$
18.  $\lim_{x \rightarrow -\infty} f(x) = \infty$   $\lim_{x \rightarrow +\infty} f(x) = \infty$
19. Degree: 4, Zero: (0, 0) mult. 3, cross Zero: (-8, 0) mult. 1, cross  $\lim_{x \rightarrow -\infty} f(x) = -\infty$   $\lim_{x \rightarrow +\infty} f(x) = -\infty$
20. Degree: 7, Zero: (-1, 0) mult. 2, touch Zero: (5, 0) mult. 3, cross Zero: (-3, 0) mult. 2 touch  
 $\lim_{x \rightarrow -\infty} f(x) = -\infty$   $\lim_{x \rightarrow +\infty} f(x) = \infty$
21. Zeros: (-1, 0), (1, 0), (3, 0) y-int: (0, -3) end behavior:  $\lim_{x \rightarrow -\infty} f(x) = \infty$   $\lim_{x \rightarrow +\infty} f(x) = -\infty$